

CLAIMS

What is claimed is:

1. A method of preprocessing for motion-compensated video encoding, comprising:

- (a) providing a frame in a video sequence for motion-compensated encoding;
- (b) for a pixel in said frame, comparing a difference between (i) the value of said pixel and (ii) the predicted value of said pixel from motion compensation prediction of said frame to a first level;
- (c) when said comparing of step (b) indicates said difference is greater than said first level, apply lowpass filtering to said pixel; and
- (d) repeating steps (b)-(c) for other pixels of said frame;
- (e) motion-compensated encoding of said frame after said filtering.

2. The method of claim 1, wherein:

- (a) said filtering of step (c) of claim 1 is filtering is both spatial in said frame and temporal over other frames of said video sequence.

3. The method of claim 2, further comprising:

- (a) for said pixel, comparing said difference to a second level which is less than said first level; and
- (b) when said comparing of step (a) indicates said difference is greater than said second level but less than or equal to said first level, comparing the magnitude of the motion vector for the block containing said pixel to a first threshold;
- (c) when said comparing of step (b) indicates the magnitude of said motion vector is greater than said first threshold, spatial lowpass filtering to said pixel; and

(d) wherein said step (e) of claim 1 encoding applies to said frame after filtering by both steps (b)-(d) of claim 1 and foregoing steps (a)-(c).

4. The method of claim 3, wherein:

(a) said spatial filtering of step (c) of claim 3 depends upon the direction of said motion vector.

5. A method of preprocessing for motion-compensated video encoding, comprising:

(a) providing a frame in a video sequence for motion-compensated encoding;

(b) for a pixel in said frame, comparing a first difference between (i) the value of said pixel and (ii) the value of said pixel in a frame prior to said frame to a temporal threshold;

(c) when said comparing of step (b) indicates said first difference is greater than said temporal threshold, comparing a second difference between (i) the value of said pixel and (ii) the predicted value of said pixel from motion compensation prediction of said frame to a first level;

(d) when said comparing of step (b) indicates said second difference is greater than said first level, apply lowpass filtering to said pixel; and

(e) repeating steps (b)-(d) for other pixels of said frame;

(f) motion-compensated encoding of said frame after said filtering.

6. The method of claim 5, wherein:

(a) said filtering of step (d) of claim 5 is filtering is both spatial in said frame and temporal over other frames of said video sequence.

7. The method of claim 6, further comprising:

(a) for said pixel, comparing said second difference to a second level which is less than said first level; and

(b) when said comparing of step (a) indicates said second difference is greater than said second level but less than or equal to said first level, comparing the magnitude of the motion vector for the block containing said pixel to a first threshold;

(c) when said comparing of step (b) indicates the magnitude of said motion vector is greater than said first threshold, spatial lowpass filtering to said pixel; and

(d) wherein said step (f) of claim 5 encoding applies to said frame after filtering by both steps (b)-(e) of claim 5 and foregoing steps (a)-(c).

8. The method of claim 7, wherein:

(a) said spatial filtering of step (c) of claim 7 depends upon the direction of said motion vector.